

REMARKS

Claim 1 has been amended to recite a ratio c/a of 1.0089 or more, a ratio d/D of from 1 to 1.5, an atomic ratio Ba/Ti of 0.997 to 1.001, and a BET specific surface area of from $6.49 \text{ m}^2/\text{g}$ to $8.65 \text{ m}^2/\text{g}$. Support for amended Claim 1 can be found at, for example, Examples 1 to 4 of the present specification and original subject matter of Claim 1. Claim 17 has been canceled. Upon entry of this amendment, which is respectfully requested, Claims 1-5 and 18 will be pending.

Response to Claim Rejections Under §§ 102 and 103

Claims 1-5 and 17-18 have been rejected under 35 U.S.C. §102(e) as allegedly being anticipated by or in the alternative, under 35 U.S.C. §103(a) as allegedly being obvious over U.S. Patent Application Publication No. 20040028601 to Torii. Applicants respectfully traverse.

The presently claimed invention is directed to a barium titanate powder comprising a perovskite structure having a ratio c/a of 1.0089 or more, ratio d/D of from 1 to 1.5, atomic ratio Ba/Ti of 0.997 to 1.001, and BET specific surface area of from $6.49 \text{ m}^2/\text{g}$ to $8.65 \text{ m}^2/\text{g}$, wherein “c” is a length of a c axis, “a” is a length of an a axis in the perovskite structure, “d” is an average particle diameter and “D” is an equivalent BET specific surface area diameter.

The ratio c/a relates to a degree of polarization in a dielectric made of barium titanate, wherein the larger the value of the ratio, the higher polarization of the obtainable dielectric. Further, the BET specific surface area relates to the sintering property at lower temperatures. In this regard, the presently claimed invention has an appropriate BET specific surface area range for sintering at lower temperatures.

Moreover, the powder of the present invention is obtained by the method disclosed in Examples 1 to 4 of the present specification, which method comprises the steps of:

(1) heating a mixture containing a titanium compound and a barium compound under a gas atmosphere containing a halogen at a temperature of not less than about 200°C and less than the temperature for generation of barium titanate;

(2) calcining the obtained mixture under an atmosphere containing substantially no halogen unlike the above-heating step at a temperature of not lower than the temperature for generation of barium titanate;

(3) washing the barium titanate powder obtained in the step (2); and

(4) re-calcining the washed powder.

Torii does not disclose or suggest the method including the above steps. Thus, one of ordinary skill in the art would not obtain the presently claimed barium titanate powder in view of Torii's disclosure.

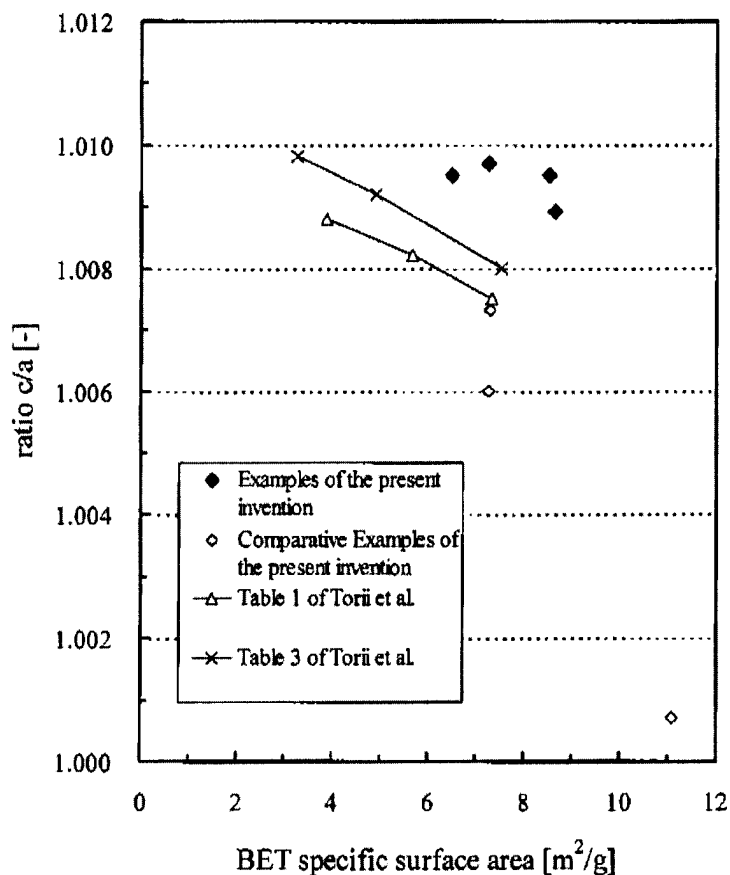
In addition, the Examiner asserts that one of ordinary skill in the art would have expected that calcination at a temperature between 900 and 950 °C, e.g., 925 °C, would yield a product with a surface area of 6.49 m²/g to 7.27 m²/g by extrapolating the data presented in Tables 1 and 3 of Torii.

As noted above, Claim 1 has been amended to recite the ratio c/a to 1.0089 or more. In this regard, Applicants direct the Examiner's attention to Figure 1, below, which represents the relationship between the ratio c/a and BET specific surface area, wherein "Δ" values correspond to the data in Table 1 of Torii and "x" values correspond to data in Table 3 of Torii. More particularly, the right side value of Δ(x) corresponds to a calcination temperature of 900°C; the

center value of $\Delta(x)$ corresponds to a calcination temperature of 950°C; and the left side value of $\Delta(x)$ corresponds to a calcination temperature of 1,000°C. As shown in Figure 1, a linear relationship exists between the ratio c/a and BET specific surface area when Torii's data is considered.

In contrast, when data from Examples 1-4 of the present specification (represented by “♦”) is considered, the data do not overlap with Torii at all.

Figure 1



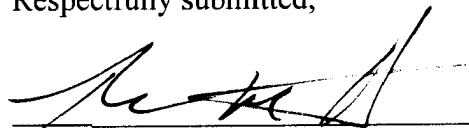
According to the present claimed invention, excellent polarization and excellent sintering property at lower temperatures can be obtained. However, as shown in Figure 1, above, the powder of Torii does not satisfy both of these properties.

Thus even if one of ordinary skill in the art carries out calcination at a temperature between 900 and 950 °C, e.g., 925 °C, in view of Torii, the obtained product would fail to satisfy the presently claimed ranges of the ratio c/a and the BET specific surface area. Accordingly Torii fails to anticipate or render obvious the present claims. Withdrawal of the rejection is respectfully requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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